



Nuclear Power 2010 (NP 2010)

Office of Nuclear Energy, Science and Technology
U. S. Department of Energy

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Nuclear Power 2010 -- Overview

Deploying new baseload nuclear generating capacity this decade would support the *National Energy Policy* objectives of enhancing U.S. energy supply diversity and energy security. The Nuclear Power 2010 program is a joint government/industry cost-shared effort to identify sites for new nuclear power plants, develop advanced nuclear plant technologies, and demonstrate new regulatory processes leading to a private sector decision by 2005 to order new nuclear power plants for deployment in the United States in the 2010 timeframe.

Background

Electricity demand in the United States is expected to grow sharply in the 21st century requiring new generation capacity. Forecasts indicate that the United States will need about 393,000 megawatts of new generating capacity by 2020. If U.S. electricity demand continues to grow at the rates experienced in recent years, even more generating capacity will be needed. This growth would require the United States to build between 1,300 and 1,900 new power plants over the next two decades. This averages to building and commissioning 60 to 90 new power plants per year.

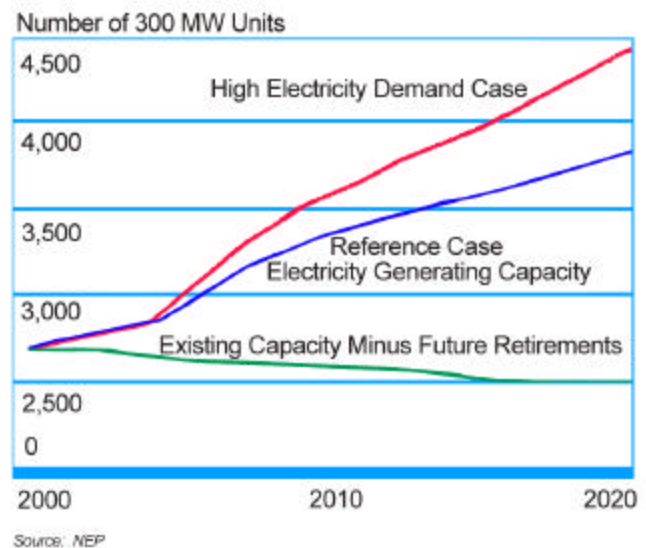
Nuclear power plants generate twenty percent of the electric energy produced in the United States. To help meet the projected increase in the need for new baseload electricity generation, the *National Energy Policy* calls for an expanded role for nuclear energy. Despite the excellent recent performance of nuclear power plants and decisions by power plant owners to seek license renewal and power uprates for existing power plants, no nuclear plants have been ordered in the United States for more than 25 years. Barriers to deployment of new nuclear power plants include the significant cost and schedule uncertainties associated with the new untested licensing processes for siting, licensing, and operating new nuclear power plants, and the high capital costs of existing certified

designs. Through the regulatory demonstration and reactor technology development activities of the Nuclear Power 2010 program, competitive advanced reactor designs, in the range of \$1,000 to \$1,200 per kilowatt electric, are expected to become available to the commercial electricity generation market.

Roadmap For Deployment

In early fiscal year 2002, a Near-Term Deployment Working Group, operating under the auspices of the Department's Nuclear Energy Research Advisory Committee, issued *A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010*. The Roadmap recommends actions to be taken by industry and the Department to support deployment of new advanced nuclear power plants in the United States by 2010. The recommendations, which have broad industry support, provide the basis for the activities of the Nuclear Power 2010 program.

Consistent with Roadmap recommendations a phased plan of action is proposed to achieve near-term deployment of new nuclear power plants. Major phases include a Regulatory Demonstration phase and a Technology Development phase. For each phase, the Department will issue competitive procurements to reactor vendors and power



generation companies to implement the phased approach.

The regulatory tasks include the demonstration of the Early Site Permit (ESP) and combined Construction and Operating License (COL) processes to reduce licensing uncertainties and minimize the attendant financial risks to the licensee. The technology development activities support research and development to finalize and certify those advanced reactor designs which U.S. power generation companies are willing to build.

FY 2002 Accomplishments

- Completed the near-term deployment roadmap, *A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010*, recommending actions to be taken by government and industry to successfully address regulatory and institutional issues and enable new commercial nuclear power plant deployment by 2010.
- Completed competitively selected cost-shared Early Site Permit (ESP) scoping studies by power generating companies to evaluate site suitability and to develop schedule and resource estimates for siting new nuclear power plants at both federal and commercial sites.
- Completed a Nuclear Business Case Study, developed with expert input from U.S. financial and nuclear industries, to identify the necessary conditions under which utilities would add new nuclear capacity, and to develop strategies to close the financial

gaps which pose the highest risk (www.nuclear.gov/home/bc/businesscase.html).

- Initiated cost-shared regulatory demonstration projects with Exelon, Dominion Energy, and Entergy to obtain Nuclear Regulatory Commission Early Site Permits for three commercial nuclear plant sites at North Anna, Clinton, and Grand Gulf by 2005.

FY 2003 Planned Accomplishments

- Initiate a cost-shared advanced reactor certification and technology development project.
- Under the cooperative agreements with U.S. power generation companies, submit three Early Site Permit applications for commercial sites to the Nuclear Regulatory Commission.
- Initiate a nuclear construction risk and technology assessment to identify promising improvements to the construction methods, techniques and sequences needed to support new nuclear power plant deployment in this decade.

Program Budget Nuclear Power 2010¹ (\$ in Millions)

FY 2002	FY 2003	FY 2004
<u>Appropriation</u>	<u>Adj. Approp.</u>	<u>Request</u>
\$7.9	\$30.0	\$38.5

¹Funding provided in the Nuclear Energy Technologies Appropriation

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